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The Communication Patterns Questionnaire–Short Form: A Review and Assessment

Ted G. Futris¹, Kelly Campbell², Robert B. Nielsen³, and Stephanie R. Burwell¹

Abstract

The Communication Patterns Questionnaire–Short Form (CPQ-SF) is an 11-item self-assessment of spouses' perceptions of marital interactions. A cited reference review of the CPQ-SF literature revealed no formal assessment of its psychometric properties and that researchers are imprecise in their use, reporting, and referencing of the measure. Toward improving the use of the CPQ-SF in research and practice, the factor structure and psychometric properties of this scale were examined with data collected from a diverse sample of 477 married individuals. Three latent constructs were identified: criticize/defend, discuss/avoid, and positive interaction patterns. Suggestions for a more precise use of the CPQ-SF in research and practice conclude the article.

Keywords

assessment, communication patterns questionnaire–short form, marital communication, conflict, interaction patterns, demand–withdraw

In effort to understand various marital outcomes, researchers have conducted observational studies of married couples and their interaction patterns (Gottman & Notarius, 2000). Although observational methods provide exceptional assessment of marital interactions, they are costly and time consuming (Hahlweg, Kaiser, Christensen, Fehm-Wolfsdorf, & Groth, 2000) and unnatural in that couples are prompted to engage in a conflict discussion while being videotaped in a laboratory setting (Eldridge & Christensen 2002; Roberts, 2000). This limits the ability to capture conflict occurring across different time points (e.g., a problem occurring in the morning might be discussed in the evening) and multiple settings (e.g., the car, the bedroom). As well, couples are not likely to engage in behaviors reflective of withdrawal and avoidance when instructed to discuss a topic for a specified amount of time. Finally, observational methods rely on researchers' codings of the interaction, which may not reflect the couple members' perceptions of the conflict discussion.

Christensen (1987, 1988; Christensen & Sullaway, 1984) developed the Communication Patterns Questionnaire (CPQ) to address the aforementioned limitations of observational assessments of couple interactions. Items for the CPQ were developed by Christensen and Sullaway (1984). Drawing from their extensive clinical experience and research and the work of Fogarty (1976), Gottman (1979), and Peterson (1983), they composed an initial list of items representing couple interactions and communication. These items were then refined through a series of empirical studies with couples. The final

CPQ consists of 35 items in which couple members are asked to independently self-report on their typical interaction patterns. The CPQ assesses interactions across three time periods: when an issue or problem arises, during discussions of the issue or problem, and after discussion of the issue or problem. Respondents read descriptions of how conflict might typically be addressed in their relationship and use a 9-point Likert-type scale to indicate the likelihood of that particular pattern occurring. Each pattern is reflective of either complementary behavior, where partners exhibit different behaviors (e.g., "Man tries to start a discussion while woman tries to avoid a discussion"), or symmetrical behavior, where partners exchange similar behavior (e.g., "Both members avoid discussing the problem").

Researchers have conceptualized the CPQ subscales differently over time. Initially, Christensen (1988) theoretically

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Table 1. Components of the Communication Patterns Questionnaire–Short Form (CPQ-SF)

Items	Complementary (C) versus Symmetrical (S) Pattern
When issues or problems arise, how likely is it that . . .	
1. Both spouses avoid discussing the problem	Mutual avoidance (S)
2. Both spouses try to discuss the problem	Mutual discussion (S)
3. Female tries to start a discussion while male tries to avoid a discussion	F-discusses/ M-avoids (C)
4. Male tries to start a discussion while female tries to avoid a discussion	M-discusses/F-avoids (C)
During a discussion of issues or problems, how likely is it that . . .	
5. Both spouses express feelings to each other	Mutual expression (S)
6. Both spouses blame, accuse, or criticize each other	Mutual blame (S)
7. Both spouses suggest possible solutions and compromises	Mutual negotiation (S)
8. Female pressures, nags, or demands while male withdraws, becomes silent, or refuses to discuss the matter further	F-demands/M-withdraws (C)
9. Male pressures, nags, or demands while female withdraws, becomes silent, or refuses to discuss the matter further	M-demand/F-withdraws (C)
10. Female criticizes while male defends himself	F-criticizes/M-defends (C)
11. Male criticizes while female defends herself	M-criticizes/F-defends (C)

Note. Items 3, 8, and 10 are summed for the female demand/male withdraw subscale; Items 4, 9, and 11 are summed for the male demand/female withdraw subscale; Items 3, 4, 8, 9, 10, and 11 are summed for the total demand/withdraw subscale; and Items 2, 5, and 7 are summed for the overall positive interaction subscale. Christensen and Heavey (1990) did not indicate how to score Items 1 and 6.

organized 11 of the CPQ's 35 items into three subscales: (a) demand/withdraw communication (6 items), in which one partner initiates discussion, demands, criticizes, or nags, while the other partner avoids or withdraws from discussion; (b) demand/withdraw roles, which consists of the same six interaction patterns but men's scores are subtracted from women's scores to identify sex-typed patterns of demand/withdraw; and (c) mutual constructive communication (5 items), in which both partners contribute to the discussion and try to solve problems. Subsequently, Noller and White (1990) identified four subscales using all 35 items: (a) destructive process, which is similar to Christensen's (1988) demand/withdraw communication subscale; (b) coercion, which included threatening, aggressive, and pressuring/resist interaction patterns; (c) mutuality, which consisted of symmetrical interaction patterns such as mutual avoidance, discussion, expression, negotiation, and withdrawal; and (d) post-conflict distress, which included post-conflict interaction patterns in which one partner feels guilty or tries to reconcile while the other feels hurt or withdraws.

Next, Christensen and Shenk (1991), like Christensen (1988), divided the CPQ into a mutual constructive communication subscale and a demand/withdraw communication subscale, but separated the latter into two scores reflective of sex-specific patterns (female demand/male withdraw and male demand/female withdraw). They also added the mutual avoidance subscale, which consisted of three symmetrical patterns in which both partners avoid, withdraw, or withhold from discussion. Finally, Heavey, Larson, Zumtobel, and Christensen (1996) reconceptualized and examined the psychometric properties of the constructive communication subscale, which consisted of the sum of 3 items reflecting positive communication patterns (i.e., mutual discussion, expression, and negotiation) being subtracted from the sum of 4 items assessing destructive

communication patterns (i.e., mutual blame, mutual threat, and verbal aggression by the man and by the woman). Overall, the CPQ and its subscales are used widely in the study of couple communication and therapy and demonstrate acceptable validity and reliability (Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006; Doss, Thum, Sevier, Atkins, & Christensen, 2005; Roberts, 2000). Studies have also demonstrated consistency between partner self-reports, self-reports, and observer ratings (e.g., Bodenmann, Kaiser, Hahlweg, & Fehm-Wolfsdorf, 1998; Christensen, 1988; Hahlweg et al., 2000).

The CPQ-SF

Christensen and Heavey (1990) developed a condensed version of the CPQ, the CPQ–Short Form (CPQ-SF). The scale asks spouses to identify their typical communication patterns for two of the original three time periods: when an issue or problem arises and during discussions of the issue or problem. Items from the CPQ that pertain to these two time periods and that assess demand/withdraw and positive interactions were included in the CPQ-SF. As shown in Table 1, the short form consists of 11 items, 6 to assess complementary interaction patterns between spouses and 5 to assess symmetrical interaction patterns. The complementary patterns include one partner discusses while the other avoids, one partner demands while the other withdraws, and one partner criticizes while the other defends. Each of these patterns is assessed with two items that present the female and male in alternating roles. The symmetrical patterns reflect mutual discussion, expression of feelings, negotiation, avoidance, and blame.

Christensen and Heavey (1990; Heavey, Layne, & Christensen, 1993) conceptually organized the CPQ-SF into 4 subscales: (a) female demand/male withdraw (sum of Items 3, 8, and 10); (b) male demand/female withdraw (sum of Items

4, 9, and 11); (c) total demand/withdraw (sum of Items 3, 4, and 8–11); and (d) overall positive interaction (sum of Items 2, 5, and 7). The demand/withdraw subscales of the CPQ-SF consist of the same items used in the demand/withdraw communication subscale of the CPQ. The overall positive interaction subscale represents three of the five symmetrical interaction patterns from the original mutual constructive communication subscale (Christensen, 1988). Christensen and Heavey do not indicate how the remaining two symmetrical interaction patterns in the CPQ-SF (i.e., mutual avoidance and mutual blame, Items 1 and 6) fit into the subscales or explain why they are excluded. To date, no formal assessment of the CPQ-SF's factor structure or psychometric properties has been published.

We conducted a cited reference search using the Web of Science to identify studies citing Christensen and Heavey (1990, 1993) and Heavey et al. (1993) where the CPQ-SF was originally presented. A total of 231 authors cited the article by Christensen and Heavey (1990), 155 authors cited Heavey et al.'s (1993) article, and another 39 cited the book chapter by Christensen and Heavey (1993). From these publications, authors of 21 studies clearly indicated they had administered the CPQ-SF to participants who reported on their couple relationships (see Table 2). The other articles referenced the CPQ-SF publications but did not administer the scale to participants, administered the full CPQ, or were not clear on whether they used the short or full version of the CPQ. Numerous researchers who administered the full CPQ to participants, or variants of it, reported using only the 6 demand/withdraw items in their analyses; these 6 demand–withdraw items are identical in both versions of the scale. All 21 studies used convenience samples and, with the exception of five studies (Studies 1, 6, 7, 12, and 16), most used the CPQ-SF with nonclinical populations. We used these 21 empirical studies to identify what is currently known about the CPQ-SF, including its factor structure and psychometric properties.

In our review, we noticed a number of inconsistencies in the use and referencing of the CPQ-SF. For example, the CPQ-SF was referred to by different acronyms (Studies 7 and 11), described as consisting of 8 (Studies 5 and 7) or 7 (Study 12) items rather than 11, and scored with differing Likert-type scale anchor points (i.e., 7 points rather than 9; Study 18). The overall positive interaction subscale was referred to by different names including mutual constructive communication (Studies 1, 6, 12, and 16), constructive communication (Studies 7 and 17), positive communication (Studies 11 and 15), symmetrical positive communication (Studies 8 and 20), and mutually integrative interaction (Study 18). At times, researchers did not cite the appropriate sources when describing the CPQ-SF and/or cited studies to support the CPQ-SF's validity and reliability that pertained to the CPQ, not the CPQ-SF (Studies 2, 5, 7, 15, 18, and 19). Only five studies (Studies, 1, 6, 8, 11, and 16) used the full 11-item CPQ-SF and cited the appropriate sources (i.e., Christensen & Heavey, 1990, 1993; Heavey et al., 1993).

These inconsistencies in the use and referencing of the CPQ-SF present challenges for researchers who desire to either replicate or place prior research into context, but in most cases,

a thorough reading of the articles provides clues to the methodological path taken by the researchers. Like most studies using the 35-item CPQ measure, all 21 studies examined demand/withdraw communication patterns. As shown in Table 2, 5 studies computed only a total demand/withdraw score (Studies 5, 6, 7, 8, and 11), 13 studies computed only female demand/male withdraw and male demand/female withdraw scores (Studies 2, 3, 4, 9, 10, 13, 14, 15, 17, 19, and 20), and 3 computed all three scores (Studies 1, 12, and 21). Most of these studies adhered to the conceptualized scoring of these subscales; however, five studies that only examined sex-specific demand and withdrawal communication patterns (Studies 3, 9, 10, 13, and 14) intentionally excluded Items 3 and 4 (see Table 1), albeit for different reasons: Heffner et al. (2006) explained that they were primarily interested in communication patterns during a discussion, whereas Caughlin and colleagues noted that the term “discussion” in these items “does not reflect the negative affect implied by the demanding behaviors inherent in demand/withdrawal” (Caughlin & Huston, 2002, p. 100). Overall, across the 21 studies, the demand/withdraw subscales exhibited moderate to high internal consistency (Cronbach's α ranging from .50 to .85), with the exception of three of the five studies that computed 2-item subscale scores (Cronbach's $\alpha = .33$ in Studies 9, 13, and 14).

Still, our review revealed a fundamental challenge for researchers administering or interpreting the CPQ-SF scoring. Specifically, of the remaining 5 items, it is unclear why Christensen and Heavey (1990) included Items 1 (mutual avoidance) and 6 (mutual blame) in the scale but excluded them from scoring (see Table 1). As summarized in Table 2, 13 of the 21 studies computed a positive interaction score using the three mutually constructive communication items and reported relatively high internal consistency (Cronbach's α ranging from .68 to .91; Studies 1, 5, 6, 7, 8, 11, 12, 15, 16, 17, and 18). In addition, although subsequent researchers have included the two destructive communication items in their administration of the CPQ-SF, only three studies included them in their analyses, albeit as separate single-item scores (Studies 16, 17, and 18). As a result, the literature provides little, and often inconsistent, guidance for CPQ-SF users.

Alternate Model

We hope to clarify issues about the use and scoring of the CPQ-SF by proposing a scale structure derived from Gottman's extensive research on couple interactions. Whereas CPQ-SF users have traditionally conceptualized the scale in terms of two factors, demand/withdraw and positive interactions, Gottman suggests that criticize/defend (i.e., conflict engaging) patterns should not be conceptualized as a type of demand/withdraw behavior (i.e., conflict avoiding). Gottman (1994) identified four dysfunctional behavioral processes (i.e., “The Four Horsemen of the Apocalypse,” p. 110) that contribute to the demise of intimate relationships (in order of least to most detrimental): criticism, contempt, defensiveness, and stonewalling. Defensiveness typically occurs in response to criticism

Table 2. Results From Empirical Studies Using the Communication Patterns Questionnaire–Short Form (CPQ-SF)

Study	Sample and Data Collection Methods	Cronbach's α Coefficients	
		Partner 1	Partner 2/Combined
1. Denton & Burleson, 2007	Convenience samples of 120 married individuals (69 women) recruited from university, community, and psychiatric/therapy clinics; mail-in survey	.56 PID/P2W .74 P2D/P1W .69 TDW .83 Pi	.66 PID/P2W .70 P2D/P1W
2. Vogel, Murphy, Werner-Wilson, Cutrona, & Seeman, 2007	Convenience sample of 72 married couples recruited through a university e-newsletter; in-person written survey	.75 PID/P2W .60 P2D/P1W	.76 PID/P2W ^a
3. Heffner et al., 2006	Convenience sample of 31 married couples recruited through newspaper ads, senior centers, and participant referrals; in-person written survey		.82 PID/P2W .82 P2D/P1W
4. Malis & Roloff, 2006	Convenience sample of 219 individuals (137 women) recruited from university classes; in-person written survey		.58/.68 TDW .72/.80 Pi
5. Troy, Lewis-Smith, & Laurenceau, 2006 ^b	Convenience samples of 118 (Study 1) and 109 (Study 2) dating couples at a university; in-person written survey.	.58/.68 TDW .72/.80 Pi	
6. Byrne, Carr, & Clark, 2004	Convenience sample of 60 couples recruited from mental health clinics and the community; mail-in survey	NR ^c	.85 TDW .85 Pi
7. Cook, Riggs, Thompson, Coyne, & Sheikh, 2004 ^b	Convenience sample of 331 ex-POWs and their partners recruited through American Ex-Prisoner of War Association; mail-in survey	.70 TDW .91 Pi	
8. Kurdek, 2004	Convenience sample of 101 married heterosexual couples recruited from published marriage licenses and 111 cohabiting gay/lesbian couples recruited through advertisements; mail-in survey	.65 PID/P2W ^a .57 P2D/P1W ^a	.69 PID/P2W ^a .33 P2D/P1W ^a
9. Caughlin, 2002	Snowball/network sample of 46 married couples recruited through participant and network referrals; telephone interview	.74 PID/P2W ^a .58 P2D/P1W ^a	.69 PID/P2W ^a .64 P2D/P1W ^a
10. Caughlin & Huston, 2002	Convenience sample of 90 married couples recruited through public marriage license records; telephone interview	.70 TDW .91 Pi	
11. Kurdek, 2001	Convenience sample of 101 married heterosexual couples recruited from published marriage licenses and 222 cohabiting gay/lesbian couples recruited through advertisements; mail-in survey		.69 PID/P2W .74 P2D/P1W .70 TDW .71 Pi
12. Byrne & Carr, 2000 ^b	Convenience sample of 28 couples recruited from general practitioners; mail-in survey		
13. Caughlin & Vangelisti, 2000	Snowball/network sample of 57 married couples recruited through participant and network referrals; in-person survey	.67 PID/P2W ^a .63 P2D/P1W ^a	.68 PID/P2W ^a .33 P2D/P1W ^a

(continued)

Table 2 (continued)

Study	Sample and Data Collection Methods	Cronbach's α Coefficients	
		Partner 1	Partner 2/Combined
14. Caughlin & Vangelisti, 1999	Snowball/network sample of 57 married couples recruited through participant and network referrals; in-person survey.	.67 PID/P2W ^a .63 P2D/P1W ^a	.68 PID/P2W ^a .33 P2D/P1W ^a
15. Vogel, Wester, & Heesacker, 1999	Convenience sample of 118 individuals (60 women) recruited from university classes; in-person survey	.71 PID/P2W .66 P2D/P1W .87 Pi	
16. Holtzworth-Munroe, Smutzler, & Stuart, 1998	Convenience sample of 119 married men recruited through marital violence treatment programs, and community and newspaper advertisements; in-person survey	.63 PID/P2W .67 P2D/P1W .75 Pi	
17. Kiecolt-Glaser, et al., 1997	Convenience sample of 31 married couples recruited through newspaper ads, senior centers, and participant referrals; telephone interview.	NR ^d	
18. Kluwer, Heesink, & Van de Vliert, 1997	Convenience sample of 494 couples (75% married; 25% cohabiting) recruited through midwives (female participants were all pregnant); mail-in survey		.65 PID/P2W .58 P2D/P1W .74 Pi
19. Klinetob & Smith, 1996	Convenience sample of 50 married couples recruited from university classes; in-person survey	.79 PID/P2W ^{e(i)} .77 PID/P2W ^{e(ii)} .57 P2D/P1W ^{e(i)} .74 P2D/P1W ^{e(ii)}	.71 PID/P2W ^{e(i)} .72 PID/P2W ^{e(ii)} .65 P2D/P1W ^{e(i)} .72 P2D/P1W ^{e(ii)}
20. Heavey, Layne, & Christensen, 1993	Convenience sample of 29 married couples recruited from fliers sent to preschools in the Los Angeles area; in-person survey		.71 PID/P2W .66 PID/P2W .87 Pi
21. Christensen & Heavey, 1990	Convenience sample of 31 married couples recruited through medical professionals, newspaper advertisements, and local schools; in-person survey.	.85 PID/P2W .50 P2D/P1W .73 TDW .78 Pi	.71 PID/P2W .72 P2D/P1W .74 TDW .73 Pi

Note. Partner 1 = female or self (if couple data not collected); Partner 2/Combined = male or averaged couple report; PID/P2W = Partner 1 demand and Partner 2 withdraw; P2D/P1W = Partner 2 demand and Partner 1 withdraw; Pi = overall positive interaction or constructive communication; TDW = total demand-withdraw.

^a Based on 2 items from demand/withdraw subscale; excluded items 1 and 2 (see Table 1). ^b Shortened version of CPQ-SF with 8 items (Studies 5 and 7) and 7 items (Study 12). ^c Computed TDW and Pi; Cronbach's α coefficients were reported as being above .70. ^d Computed PID/P2W, P2D/P1W, Pi, and negative behaviors (items 10 and 11). ^e Each partner completed CPQ-SF twice with respect to (i) one issue identified by the wife and (ii) one issue identified by the husband.

and involves a denial of responsibility. This pattern serves to escalate conflict, but is not as destructive as stonewalling, which is an emotional, psychological, and/or physical withdrawal from the interaction. Defensive behaviors therefore keep partners engaged in communication, whereas stonewalling/withdrawal serves to minimize or terminate an interaction. A couple who is seeking therapy or near breakup may have interactions characterized by more demand/withdraw behaviors, whereas a couple who is less distressed may exhibit fewer demand/withdraw and more criticize/defend behaviors. Based on Gottman's work, we believe it is appropriate to conceptualize the CPQ-SF according to three, rather than two factors: criticize/defend, demand/withdraw, and positive interactions.

Discrepancies in the use and referencing of the CPQ-SF are likely due to the lack of formal, published research on the assessment's psychometric properties. Therefore, the goals of this study are threefold. Our first goal is to critically examine the factor structure of the CPQ-SF as originally conceptualized. Although previous research on the factor structure of the CPQ is limited (Noller & White, 1990), similar analyses with the CPQ-SF do not exist, and CPQ-SF (and CPQ) users have been primarily dependent on the original conceptualization of the 6-item demand/withdraw subscales. Thus, the current study examines both the two-factor structure originally conceptualized by Christensen and Heavey (1990) consisting of demand/withdraw (complementary interaction patterns) and overall positive interactions (symmetrical interaction patterns), and the three factor structure later proposed by Christensen and Shenk (1991) where demand/withdraw is separated into two factors based on sex-specific patterns. Our second goal is to test an alternate model in which the positive interaction subscale remains consistent with the original conceptualization of Christensen and Heavey, but the demand/withdraw subscale is divided in two factors to distinguish conflict engaging behaviors (i.e., criticize/defend) from conflict avoiding (i.e., demand/withdraw) behaviors. This distinction may be useful to researchers and clinicians interested in understanding the level and severity of negativity present in a couple's interaction patterns, given that withdrawal or stonewalling is the most severe behavior in terms of detriment to the relationship (Gottman, 1994). The final goal of this study is to formally examine the psychometric properties of the CPQ-SF using a diverse sample of 477 individuals from married and remarried households. Our study will extend the existing CPQ-SF research by recruiting participants through random sampling methods. Prior studies (see Table 2) have relied on convenience or snowball/network sampling methods, which are prone to external validity challenges.

Method

The current data were drawn from a larger study that examined married individuals' perceptions of their relationship behaviors and well-being. A total of 517 computer-assisted telephone interviews were obtained from a random-digit dialed sample of Georgia households conducted by the University of Georgia

Survey Research Center. Respondents were screened to assure they were 18 years of age or older, currently married, and sharing a residence with their spouse. To balance the number of male and female spouses participating in the study, a household-level random selection procedure was used to determine whether the male or female spouse would complete the survey. Finally, to ensure that rural respondents were well represented, rural telephone exchanges were oversampled, resulting in 53.5% of respondents who lived in nonmetropolitan areas.

Sample

Of the 517 married respondents, 477 provided complete data on the CPQ-SF and were included in the analyses reported here. The sample ranged in age from 18 to 85 years ($M = 50.5$ years, $SD = 15.2$ years) and 60% were female. Eighty percent were Caucasian, 17% were African American, and 3% classified themselves as "Other." Most of the sample (67%) had completed at least some college or had one or more college degrees, 28% had only completed high school or had a GED, and 5% had less than a high school diploma. The majority of respondents (62%) were in first-time marriages with the remainder (38%) in a marriage in which one or both partners had been previously married. The duration of participants' current marriage ranged from <1 year to 66 years ($M = 22.9$ years, $SD = 16.2$ years).

Measures

CPQ-SF. The CPQ-SF is a condensed version of the Communication Patterns Questionnaire consisting of 11 items (Christensen & Heavey, 1990, 1993). Individuals were read descriptions of interaction patterns over the telephone and used a 9-point Likert-style scale (1 = *very unlikely*; 9 = *very likely*) to indicate the representativeness of that description for the conflict and communication patterns in their relationship. As described more fully in the results section, items corresponding to each of originally conceptualized and alternate subscales were assessed: (a) male demand/female withdraw (Items 4, 9, and 10); (b) female demand/male withdraw (Items 3, 8, and 11); (c) original total demand/withdraw (Items 3, 4, 8–11); (d) alternate demand/withdraw (Items 1, 3, 4, 8, and 9); (e) criticize/defend (Items 6, 10, and 11); and (f) positive interaction (Items 2, 5, and 7). Higher scores on each subscale indicate a greater likelihood of using that communication pattern during conflict interactions.

Demographics. Participants provided information on sex, age, race, ethnicity, education, years married, marital status (i.e., first marriage for both spouses vs. repeat marriage for respondent and/or spouse), and number of children.

Revised Dyadic Adjustment Scale (RDAS). The RDAS (Busby, Crane, Larson, & Christensen, 1995) is a condensed version of the widely used Dyadic Adjustment Scale (DAS). It consists of 14 items that assess relationship adjustment across three

dimensions: dyadic consensus, satisfaction, and dyadic cohesion. An overall sum score was computed (possible range: 0–69), with higher scores indicating greater relationship quality (Cronbach's α coefficient = .78). Consistent with the scoring of the RDAS (Crane, Middleton, & Bean, 2000), participants were divided into two groups: those who scored 48 and above were categorized as high in marital adjustment ($n = 386$, $M = 55.76$, $SD = 4.32$) and the remaining participants were categorized as low in marital adjustment ($n = 91$; $M = 40.40$, $SD = 7.06$). There were no statistically significant differences between the two groups in terms of the respondents' age, education, marital status, years married, and the presence and total number of children. However, a higher proportion of female respondents were categorized as low (69.2%) versus high (57.5%) in marital adjustment compared to males (30.8% vs. 42.5%, respectively), $\chi^2 = 4.20$, $p = .04$, and a higher proportion of respondents who specified their race as African American or "Other" were categorized as low (33.6%) versus high (16.5%) in marital adjustment compared to Caucasians (66.3% vs. 83.5%, respectively), $\chi^2 = 15.85$, $p = .001$. These results are consistent with previous research that found that relative to men and Caucasian individuals, women and ethnic minority populations tend to report lower marital satisfaction (Adelman, Chadwick, & Baerger, 1996; Whisman, Uebelacker, & Weinstock, 2004).

Results

Confirmatory Factor Analyses

To assess whether the 11 items on the CPQ-SF perform in a manner consistent with the two originally conceptualized subscales (i.e., demand/withdraw and positive interaction) or a Gottman-inspired three-factor solution (criticize/defend, demand/withdraw, and positive interaction), five alternative confirmatory factor analysis models were specified using LISREL 8.80 (Jöreskog & Sörbom, 2006). See Appendix for the covariance matrix. As shown in Table 3, Models 1 and 2 reflect the demand/withdraw and positive interaction constructs as originally conceptualized by Christensen and Heavey (1990). Model 1 includes the sex-specific demand/withdraw items whereas Model 2 estimates a total demand/withdraw factor. Consistent with Christensen and Heavey, Models 1 and 2 were both specified without Item 1 (mutual avoidance) or 6 (mutual blame).

The remaining three models were specified as alternative three-factor models that included Gottman-inspired (1994) criticize/defend (conflict engaging), demand/withdraw (conflict avoiding), and positive interaction subscales. These three remaining models reflect our working hypotheses. Specifically, Model 3 uses all 11 items in a model with three factors: criticize/defend, demand/withdraw, and positive interaction. Each individual item informs only one hypothesized latent construct. Because the literature reviewed earlier suggested that Items 8 and 9 (the sex-specific demand/withdraw items) may appropriately inform both criticize/defend and demand/withdrawal behaviors, Models 4 and 5 provide alternatives to compare with

Model 3. Specifically, Model 4 illustrates the individual path and overall model fit differences that occur when Items 8 and 9 simultaneously inform the two latent constructs criticize/defend and demand/withdraw, and Model 5 restricts these 2 items from informing any latent construct.

As shown by the individual path coefficients in Table 3, the direction and magnitude of the specified paths were consistent with our expectations. Path coefficients in each of the models were positive and significant at a 95% confidence level. Each individual path informed the subscales as operationalized by either Christensen and Heavey (1990) or our hypothesized alternatives based on Gottman (1994). However, a comparison of the overall quality of the models offers important insights into the relative quality of the models. As shown by the multiple indicators of overall model fit, the alternative 11-item models that include criticize/defend, demand/withdraw, and positive interaction (Models 3 and 4) best fit the data. Indeed, on all indicators of fit, the alternative models provide a better overall fit of the data than the Christensen and Heavey demand/withdraw and positive interaction models (Models 1 and 2). For example, although the root mean square error of approximation (RMSEA) values of .075 and .071 for Models 3 and 4, respectively, indicate a modest fit (Byrne, 1998), each is better than the poorly fitting .156 and .154 for Models 1 and 2, respectively.

Similar differences in the quality of absolute model fit indicators were found for the estimated goodness-of-fit index ($GFI_{M1} = .83$, $GFI_{M2} = .83$, $GFI_{M3} = .95$, $GFI_{M4} = .95$, and $GFI_{M5} = .82$) and the adjusted goodness-of-fit index that accounts for model complexity ($AGFI_{M1} = .74$, $AGFI_{M2} = .74$, $AGFI_{M3} = .91$, $AGFI_{M4} = .92$, and $AGFI_{M5} = .73$). Furthermore, the comparative fit index (CFI) offers evidence that the alternative Gottman-inspired models offer superior fit compared to the original models ($CFI_{M1} = .80$, $CFI_{M2} = .80$, $CFI_{M3} = .96$, $CFI_{M4} = .96$, and $CFI_{M5} = .80$). Finally, estimates of the adequacy of the sample size required to fit the alternative models, as indicated by Hoelter's Critical N, suggest that the sample size of 477 is adequate given the specified models, with the alternative models nearly meeting (Model 3) or exceeding (Model 4) the conventional sample size adequacy indicator of a Critical N of 200 or higher ($CN_{M1} = 58.40$, $CN_{M2} = 60.21$, $CN_{M3} = 196.98$, $CN_{M4} = 214.17$, and $CN_{M5} = 58.65$).

Together, the individual path and model fit indicators suggest that the individual subscales specified in Models 1 and 2, the original Christensen and Heavey demand/withdraw and positive interaction models, offer a less compelling fit of the data than what is achieved with Models 3 and 4, our alternative Gottman-inspired models with criticize/defend, demand/withdraw, and positive interaction constructs. In addition, based on these results, the inclusion of all 11 items is advised.

Reliability

To assess the reliability of the original and alternative CPQ-SF subscales, Cronbach's α coefficients were computed.

Table 3. Alternative Confirmatory Factor Analysis models (N = 477)

Item	Model 1 ^a			Model 2 ^b			Model 3 ^c			Model 4 ^d			Model 5 ^e		
	MDRW	FDMW	PI	TDW	PI	CD	ADW	PI	CD	ADW	PI	CD	ADW	PI	
1. Mutual avoidance	–	–	–	–	–	–	0.95 (0.14) 6.58	–	–	1.05 (0.15) 7.12	–	–	1.13 (0.15) 7.38	–	
2. Mutual discussion	–	–	1.12 (0.12) 9.23	–	1.12 (0.12) 9.23	–	–	1.17 (0.12) 9.83	–	–	1.17 (0.12) 9.76	–	–	1.13 (0.12) 9.37	
3. F-discusses/M-avoids	–	1.41 (0.13) 10.90	–	1.41 (0.13) 10.83	–	–	1.66 (0.13) 12.81	–	–	1.85 (0.13) 13.78	–	–	2.06 (0.15) 13.77	–	
4. M-discusses/F-avoids	1.31 (0.11) 11.43	–	1.32 (0.12) 11.43	–	1.49 (0.12) 12.91	–	–	–	–	1.58 (0.12) 13.20	–	–	1.52 (0.13) 11.77	–	
5. Mutual expression	–	1.23 (0.12) 10.42	–	1.22 (0.12) 10.35	–	–	1.23 (0.11) 10.71	–	–	1.24 (0.11) 10.77	–	–	1.26 (0.12) 10.74	–	
6. Mutual blame	–	–	–	–	–	1.67 (0.11) 15.21	–	–	1.68 (0.11) 15.37	–	–	1.64 (0.11) 14.80	–	–	
7. Mutual negotiation	–	1.51 (0.13) 11.36	–	1.51 (0.13) 11.34	–	–	1.45 (0.13) 11.36	–	–	1.44 (0.13) 11.36	–	–	1.46 (0.13) 11.25	–	
8. F-demands/M-withdraws	–	1.56 (0.12) 13.27	–	1.59 (0.12) 13.59	–	–	1.76 (0.12) 15.03	–	–	1.32 (0.17) 7.84	–	–	–	–	
9. M-demands/F-withdraws	1.66 (0.11) 15.02	–	1.68 (0.11) 15.21	–	1.83 (0.11) 16.44	–	–	–	–	1.18 (0.15) 7.66	–	–	–	–	
10. F-criticizes/M-defends	–	1.99 (0.11) 17.36	–	2.04 (0.11) 18.47	–	2.22 (0.11) 21.01	–	–	2.22 (0.11) 21.00	–	–	2.22 (0.11) 20.55	–	–	
11. M-criticizes/F-defends	2.02 (0.11) 18.79	–	2.04 (0.11) 19.35	–	2.22 (0.10) 21.89	–	–	–	2.21 (0.10) 21.85	–	–	2.23 (0.10) 21.56	–	–	
Cronbach's α	0.709	0.658	0.605	0.814	0.605	0.826	0.714	0.605	0.832	0.714	0.605	0.826	0.571	0.605	
Model fit indicators	560.64 [†]	–	–	554.39 [†]	–	150.69 [†]	–	–	133.39 [†]	–	–	556.20 [†]	–	–	
χ^2	43	–	–	45	–	41	–	–	39	–	–	43	–	–	
df	13.04	–	–	12.32	–	3.68	–	–	3.42	–	–	12.93	–	–	
Hoelter's critical N	58.40	–	–	60.21	–	196.98	–	–	214.17	–	–	58.65	–	–	
GFI	0.83	–	–	0.83	–	0.95	–	–	0.95	–	–	0.82	–	–	
AGFI	0.74	–	–	0.74	–	0.91	–	–	0.92	–	–	0.73	–	–	
RMSEA	0.156	–	–	0.154	–	0.075	–	–	0.071	–	–	0.158	–	–	

Note. AGFI = adjusted goodness-of-fit index; GFI = goodness-of-fit index; RMSEA = root mean square error of approximation; F = Female; M = Male. First row is estimated coefficient, second row is standard error of the estimate, third row is the t value. All path estimates significant at greater than 99% confidence level.

^a Model 1 = 3 factors, 9 items per Christensen and Heavey (1990): (1) M demand/F withdraw, and (3) positive interaction. ^b Model 2 = 2 factors, 9 items per Christensen and Heavey (1990): (1) total demand/withdraw and (2) positive interaction. ^c Model 3 = 3 factors, all 11 items: (1) criticize/defend, (2) alternate demand/withdraw, and (3) positive interaction. ^d Model 4 = 3 factors, all 11 items, items 8 and 9 cross-loading: (1) criticize/defend, (2) alternate demand/withdraw, and (3) positive interaction. ^e Model 5 = 3 factors, items 8 and 9 dropped: (1) criticize/defend, (2) alternate demand/withdraw, and (3) positive interaction.

[†] $p < .001$.

Table 4. Mean (SD) and Intercorrelations for CPQ-SF Subscales and RDAS

	CD	ADW	FDMW	MDFW	TDW	PI	RDAS
Criticize/defend (CD)	1.000	0.552	0.736	0.753	0.809	-0.266	-0.397
Alternate demand/withdraw (ADW)		1.000	0.839	0.796	0.888	-0.422	-0.436
F-demand/M-withdraw (FDMW)			1.000	0.697	0.924	-0.361	-0.412
M-demand/F-withdraw (MDFW)				1.000	0.918	-0.318	-0.419
Total demand/withdraw (TDW)					1.000	-0.369	-0.451
Positive interaction (PI)						1.000	0.431
Revised Dyadic Adjustment Scale (RDAS)							1.000
Overall sample mean (SD)	8.56 (6.67)	14.03 (9.14)	8.75 (6.22)	7.92 (6.03)	16.68 (11.28)	23.22 (4.91)	52.83 (7.81)
Low marital adjustment sample mean (SD)	13.11 (7.12)	21.22 (9.70)	13.18 (6.04)	12.24 (6.88)	25.42 (11.03)	19.55 (5.79)	40.40 (7.06)
High marital adjustment sample mean (SD)	7.49 (6.09)	12.33 (8.13)	7.71 (5.79)	6.91 (5.33)	14.62 (10.32)	24.08 (4.25)	55.76 (4.32)

Note. All correlations and F values significant at $p < .001$. Low marital adjustment (RDAS 47 or lower) sample, $n = 91$. High marital adjustment (RDAS 48 or higher) sample, $n = 386$.

Although the internal consistency of the 3 items making up the criticize/defend subscale was strong ($\alpha = .83$), the reliability of the alternate demand/withdraw subscale was moderate ($\alpha = .71$). The internal consistency for the 3 items in the positive interaction subscale was .61. Finally, α coefficients for the originally conceptualized male demand/female withdraw (Items 4, 9, and 11), female demand/male withdraw (Items 3, 8, and 10), and total demand/withdraw (Items 3, 4, and 8–11) subscales were $\alpha = .71$, $\alpha = .66$, and $\alpha = .81$, respectively. These coefficients are largely consistent with those reported in previous studies (see Table 2).

Validity

An assessment of the convergent validity of the CPQ-SF was undertaken with the RDAS because the scales measure related constructs (i.e., marital interaction and marital adjustment). First, a Pearson's correlation coefficient was computed for each of the CPQ-SF subscales and the RDAS. Although the measures assess similar constructs, the instruments do not contain overlapping content. Prior research has shown that the full versions of the CPQ and DAS are significantly correlated, with coefficients ranging from .54 to .78 (Heavey et al., 1996). As shown in the Table 4, the CPQ-SF subscales used here, including the "new" 3-item criticize/defend and demand/withdraw subscales (Model 3), are significantly correlated with RDAS in the expected direction, though the magnitude may be slightly lower, with the absolute value of the Pearson coefficients ranging from .397 to .451.

Finally, to confirm that the subscales clearly discriminate respondents with high (RDAS = 48 or higher; $n = 386$; range = 48–67) and low (RDAS = 47 or lower; $n = 91$; range = 18–47) marital adjustment, analyses of variance (ANOVAs) were computed to compare group means across the six CPQ-SF subscales. Consistent with similar assessments conducted with the full CPQ (Noller & White, 1990), results in Table 4 indicate that the groups significantly discriminated on all 6 subscales. Compared to respondents in the high marital adjustment group, those in the low marital adjustment group reported more use of criticize/defend, $F(1,475) = 58.739$, $p < .001$, and demand/withdraw communication patterns: alternate demand/withdraw

subscale, $F(1,475) = 81.448$, $p < .001$; original demand/withdraw subscale, $F(1,475) = 78.563$, $p < .001$; female demand/male withdraw, $F(1,475) = 64.563$, $p < .001$; and male demand/female withdraw, $F(1,475) = 65.484$, $p < .001$. In contrast, those in the high marital adjustment group reported more positive interactions than those in the low marital adjustment group, $F(1,475) = 72.106$, $p < .001$.

Discussion

The study of couple interaction patterns remains an important focus for researchers and clinicians because it predicts marital outcomes such as intimacy (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004), satisfaction (Caughlin 2002; Caughlin & Huston, 2002; Bodenmann et al., 1998; Heavey et al., 1993; Heavey et al., 1996), and dissolution (Gottman & Notarius, 2000; Gottman, 1994). The 35-item CPQ, the 11-item CPQ-SF, and other abbreviated versions of the CPQ are widely used to assess couple communication and interactions; yet, the use and referencing of the abbreviated versions and specifically the CPQ-SF have been imprecise. Inconsistencies may have resulted from the absence of empirical testing on the scale's factor structure and psychometric properties. We sought to fill this gap by examining the factor structure, reliability, and validity of the CPQ-SF with data from a large, diverse, and representative sample of married and remarried individuals.

The results of our analyses provide several advancements that offer guidance to researchers and clinicians who rely on the CPQ-SF. When the CPQ and subsequent CPQ-SF were originally developed, the items were organized into subscales representing two underlying factors, demand/withdraw patterns and positive interaction patterns (Christensen & Heavey, 1990). Although all researchers have used the same 6 items to assess the demand/withdraw pattern, whether using the CPQ or CPQ-SF, our analyses revealed that neither the two-factor nor the three-factor structure consisting of these items is supported. The results support an alternative three-factor solution that has not been conceptualized in previous studies using the CPQ or CPQ-SF. Specifically, a distinct criticize/defend factor was confirmed and was comprised of 3 items (2

complementary and 1 symmetrical interaction pattern). In other studies, the criticize/defend pattern is normally subsumed within the demand/withdraw subscales (Christensen & Heavey, 1990; Holtzworth-Munroe, Smutzler, & Stuart, 1998). We based our hypothesis on the work of Gottman (1994), who categorized couple interaction patterns according to varying degrees of dysfunction. Gottman's research clearly distinguished patterns of couple engagement (i.e., criticizing and defending) as less severe than patterns of avoidance or withdrawal (i.e., stonewalling).

In future applications, researchers and clinicians may wish to score the CPQ-SF differently, depending on their goals and contexts. For example, clinicians treating couples who seek therapy as a final relationship-saving effort (Wolcott, 1986) may find little value in obtaining separate scores for criticize/defend versus demand/withdraw patterns, because couples are likely to score high on all negative communications. Clinicians working with couples in this context might wish to use the original two-factor structure to assess a couple's total amount of negative communication (i.e., demand/withdraw behaviors) and then examine sex differences in these patterns. However, using the alternative three-factor structure with proactive couples in clinical settings may elucidate specific patterns of communication and interaction, which can inform and modify existing models of couple therapy to target the sequences of criticize/defend and demand/withdraw patterns. Such a discriminating use of the CPQ-SF subscale structures can inform clinicians who work with couples in very different stages of distress. Finally, depending on their goals, researchers may find it useful to use the three-factor structure, which distinguishes criticize/defend from demand/withdraw patterns, or to subsume negative patterns together and score the scale according to positive versus negative interaction patterns.

Regarding positive interaction, the results of the current study provide evidence supporting Christensen and Heavey's (1990) conceptually constructed 3-item subscale. Across all models, the individual item coefficients for the three symmetrical positive communication patterns (mutual discussion, expression and negotiation) were consistent. The moderate association between positive interaction and the other CPQ-SF subscales ($r = -.27$ to $-.42$, see Table 4) reinforced the unique nature of positive interaction patterns relative to negative interaction patterns. These findings are supported by prior studies that distinguish positive from negative affective behaviors and identify differing roles for each within intimate relationships (Bradbury & Karney, 2004; Christensen, 1988; Gottman & Notarius, 2000). The positive interaction subscale was found to be internally consistent, although its α coefficient of .61 was weak relative to previous studies.

A final important finding is that our analyses, like that of others (Noller & White, 1990), yielded mixed support for separate constructs for the sex-specific interaction patterns. Model 1, which grouped all of the male demand/female withdraw complementary communication pattern items together and distinctly from the female demand/male withdraw items, showed weaker fit relative to the alternative models

proposed. Still, congruent with prior research using the CPQ-SF (e.g., Vogel, Murphy, Werner-Wilson, Cutrona, & Seeman, 2007; Troy, Lewis-Smith, & Laurenceau, 2006), both the male demand/female withdraw and female demand/male withdraw subscales (Model 1) showed acceptable levels of internal consistency ($\alpha = .71$ and $.66$, respectively). A number of studies have shown that the wife demand/husband withdraw pattern is significantly more common than the husband demand/wife withdraw pattern, particularly when couples discuss wives' issues (Christensen & Heavey, 1990; Heavey et al., 1993; Vogel et al., 2007). Future research should continue to explore the capacity of the CPQ-SF (and CPQ) for effectively measuring the distinctiveness of these interaction patterns.

The current study also provides continued evidence of the construct validity of the original CPQ-SF subscales as well as evidence for the two newly specified subscales, criticize/defend and demand/withdraw, based on their associations with relationship quality. Overall, positive interaction was positively associated with relationship quality, whereas criticize/defend, and all four versions of demand/withdraw were negatively associated with relationship quality. The findings presented here demonstrate that all the CPQ-SF subscales discriminate respondents with low and high marital adjustment, a pattern consistent with prior research (e.g., Caughlin, 2002; Christensen et al., 2006; Kluwer, Heesink, & Van de Vliert, 1997).

Limitations

Although these findings provide meaningful direction to the future use and adaptation of the CPQ-SF, this study is not without limitations. Participants in this study were asked to report on their dyadic relationships, and hence, the data are representative of only one spouse's perception of the relationship. Previous research has found significant correlations between husbands' and wives' reports on the CPQ-SF (Heavey et al., 1996). Although a complete assessment of the CPQ-SF would include similar assessments of husbands' and wives' reports, the data in this study preclude an assessment of inter-spouse agreement. Second, these data were collected as part of a larger effort that specifically sought to understand marital relationships and thus excluded nonmarried couples (e.g., cohabiting, same sex, and dating). Because relationships among nonmarried couples are increasingly varied, future research that explores the factor structure and psychometric features of the CPQ-SF with unmarried couples would contribute an important dimension to this literature. Another limitation of these results is reflected in the percentage of African Americans ($n = 80$, or 17%) and participants of other racial backgrounds ($n = 19$, or 3%) relative to Caucasians ($n = 378$, or 80%). Although the number and percentage of African Americans was large relative to other research using the CPQ-SF, we did not assess the psychometric properties by race. The CPQ-SF and demand/withdraw subscales have been validated with cross-cultural samples (Christensen et al., 2006; Kluwer et al., 1997), but the

Appendix. Communication Patterns Questionnaire–Short Form (CPQ-SF) Item Means, Standard Deviations, and Covariances

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Mutual avoidance	3.048	2.907	8.45										
2. Mutual discussion	7.788	2.187	-1.77	4.78									
3. F-discusses/M-avoids	3.094	2.813	2.49	-1.28	7.91								
4. M-discusses/F-avoids	2.631	2.500	1.24	-1.09	3.21	6.25							
5. Mutual expression	7.889	2.089	-1.31	1.24	-1.67	-0.64	4.36						
6. Mutual blame	2.862	2.542	1.38	-1.03	1.96	1.56	-0.84	6.46					
7. Mutual negotiation	7.541	2.293	-1.13	1.69	-1.21	-0.93	1.93	-1.15	5.26				
8. F-demands/M-withdraws	2.738	2.609	1.45	-1.28	3.06	2.30	-1.38	2.59	-1.38	6.81			
9. M-demands/F-withdraws	2.516	2.526	1.40	-1.62	2.47	2.94	-1.05	3.04	-1.19	3.28	6.38		
10. F-criticizes/M-defends	2.920	2.641	1.32	-1.04	2.26	2.02	-0.75	3.64	-1.02	3.15	2.87	6.97	
11. M-criticizes/F-defends	2.778	2.557	0.84	-0.91	2.40	2.35	-0.95	3.61	-1.03	2.56	3.30	4.98	6.54

literature could still benefit from an assessment of the CPQ-SF that is specifically designed to explore the applicability of its use with more diverse populations.

Despite these limitations, our sample exhibits numerous strengths. Notably, our relatively large sample was randomly selected and represented residents of a large Southeastern state. As a result, many of the problems inherent with small, self-selecting, or purposively selected samples, which often include monetary compensation to participants, were minimized. Although the sample was limited to married couples, there was notable diversity in other relevant areas, including the respondent's sex, age, education, prior marital history, number of years married, and residence in metro/nonmetro communities. In these ways, our research benefits from a much more diverse sample of respondents compared to prior work.

Conclusion

The CPQ-SF has been shown to be a valid measure of the interpersonal communication and interactions between married couples, but further refinement of its use will assist researchers and clinicians. Although we were able to identify a number of studies that had used the CPQ-SF, the process often required detective work due to inconsistent scale labeling and incorrect works cited. Still, our review of the literature confirmed extensive use of the CPQ-SF and variant short versions of the CPQ and our formal assessment of the factor structure and psychometric properties of the CPQ-SF provide guidance for those interested in using this instrument. The brevity of the scale makes it easy for clinicians to administer and interpret in their practice, and our results suggest that depending on one's research goals the scale may be further condensed. In addition, depending on the researchers' interest and theoretical orientation, our findings suggest that the CPQ-SF can provide a means to assess negative and positive affect in couple communication and interaction in multiple ways. Regardless of how future researchers choose to structure the CPQ-SF and its subscales, greater care must be taken when reporting the composition of the scales.

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